REMARKS/ARGUMENTS

Claim 9 has been amended to make it the sole independent claim in this case and by incorporating subject matter of claim 19 into it.

Claims 1, 3-7 and 16-19 have been canceled.

New claims 20-26 directed to more specific embodiments disclosed in the present application have been added.

Claims 9-14 and 20-26 are currently pending.

The Office Action rejected the pending claims under 35 U.S.C. § 103 as obvious over JP 2002-256128 ("Masuda") or PCT patent application publication no. WO 02/39153 (U.S. patent 6,941,056) ("Hirota") in view of U.S. patent 5,726,268 ("Sakamoto"). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of these rejections.

The claimed invention relates to methods for producing a resin plate for light guiding plates comprising an edge which is a light incidence plane, the method comprising: preparing a first mixture comprising a polymerizable material consisting of methyl methacrylate and a monofunctional acrylate, and an ethyleneglycol dimethacrylate; mixing a particulate diffusing agent with the first mixture to prepare a second mixture; polymerizing the polymerizable material and the ethyleneglycol dimethacrylate in the second mixture in a mold to form a resin plate; cutting the resin plate to form an edge; and polishing the edge to form a light incidence plane. In accordance with the claimed method, the content of the monofunctional acrylate in the polymerizable material is 5% by weight or less; the content of the ethyleneglycol dimethacrylate in the first mixture is 0.15 to 2 parts by weight of the polymerizable material; and the content of the particulate diffusing agent in the second mixture is 0.01 ppm to 1000 ppm. The applied art neither teaches nor suggests this invention.

Regarding Masuda, the Office Action has recognized that this reference does not teach or suggest a content of ethyleneglycol dimethacrylate (EGDMA) in the first mixture of 0.15 to 2 parts by weight of the polymerizable material. (See, Office Action at page 4). This failure of disclosure is significant.

Masuda discloses forming materials including a mixture containing methacrylate resin and particles using injection or extrusion molding (see par. [0020]) instead of forming the polymers through polymerization in a mold (as per the claimed methods). As a result, Masuda's methods cannot provide the improved processability which the presently claimed methods provide. It is difficult to use injection or extrusion molding to mold a cross-linked polymer obtained by polymerizing the required mixture of the present invention (which includes substantial amounts of EGDMA (0.15 to 2 parts per 100 EGDMA) in the polymerizable material). Thus, Masuda which relates to injection or extrusion molding cannot teach or suggest the claimed methods which require substantial amounts of EGDMA for at least the reason that substantial amounts of EGDMA would be difficult to use in Masuda's methods. This is supported by the fact, as recognized by the Office Action, that Masuda does not teach or suggest the required amount of EGDMA. Stated another way, Masuda which relates to injection or extrusion molding actually teaches away from the claimed methods requiring substantial amounts of EGDMA.

In other words, disclosure concerning resins in injection/extrusion moldings teach or suggest nothing about the claimed methods for producing a resin plate for light guiding plates comprising an edge which is a light incidence plane. No evidence (as opposed to mere argument) has been presented to rebut this difference.

Furthermore, Masuda neither teaches nor suggest combining EGDMA with a monofunctinoal monomer. That Masuda would not lead one skilled in the art to the required

combination is evidenced by the fact that Masuda's examples do not employ any polyfunctional (meth)acrylate, let alone ethyleneglycol dimethacrylate.

Masuda's only reference to polyfunctional compounds teaches that monofunctional and polyfunctional monomers are equivalent, listing all of these compounds together in the same sentence. Nothing in Masuda would lead one skilled in the art to believe that any difference existed in such mono- and poly-functional compounds, or to combine a polyfunctional methacrylate with a monofunctional monomer.

Finally, not only does Masuda fail to disclose the required constituents of the claimed polymerizable material, Masuda also fails to disclose specific concentration ranges for these individual constituents. Nowhere does Masuda teach or suggest that the content of the monofunctional acrylate in the polymerizable material should be 5 % by weight or less and the content of the ethyleneglycol dimethacrylate should be within the very narrow range of 0.15 to 2 parts per 100 parts by weight of the polymerizable material (as discussed above).

Stated another way, Masuda does not recognize the result effective nature of these variables, and thus provides no motivation to one of ordinary skill in the art to optimize such variables.

The significance of Masuda's failure to teach or suggest the required content of the required ingredients means that Masuda cannot teach or suggest, expressly or inherently, the benefits associated with the present invention including improved processability (for example, cutting and polishing).

The examples in the present application demonstrate the significance of the requirements set forth in the pending claims, and the benefits associated with such requirements, which are neither taught nor suggested by Masuda. For example, comparative example 3 contains 10% monofunctinoal acrylate and, thus, falls outside the pending claims. As indicated in Table 1 (at page 12), this comparative example suffered significant scorching

during cutting. In contrast, examples 1-6 in Table 1 of the present application demonstrate that having less than 5% monofunctional acrylate yields compositions having improved scorching properties. These examples demonstrate the significance of limiting the content of the monofunctional acrylate in the polymerizable material. Masuda neither teaches nor suggests this important element of the claimed invention.

Also, comparative example 1 contains no ethyleneglycol dimethacrylate. As indicated in Table 1 (at page 12), this comparative example also suffered significant scorching during cutting. This example demonstrates the significance of the limitation that "the content of the ethyleneglycol dimethacrylate in the mixture is 0.15 to 2 parts per 100 parts by weight of the polymerizable material." Again, Masuda neither teaches nor suggests this important element of the claimed invention.

Clearly, Masuda neither teaches nor suggests the specific polymer components in the specific concentrations of the claimed invention, nor any of the benefits associated with the claimed invention, particularly the improved processability (e.g., cutting, polishing) of these materials. Nor does Masuda provide any motivation to modify his disclosure in such a way to focus on the claimed invention, using the required materials in the required amounts.

Sakamoto cannot compensate for Masuda's fatal deficiencies. Sakamoto neither teaches nor suggests that ethyleneglycol dimethacrylate must be present in an amount of 0.15-2% in the claimed compositions. Sakamoto, like Masuda, relates to extrusion or injection molding. In such moldings, the employed resins must have a high melt flow property. (See, col. 1, line 61 and col. 6, lines 19-23). However, as the content of polyfunctional (meth)acrylates increases, the melt flow properties of the resins deteriorate (due to crosslinking). Thus, the content of such materials in injection/extrusion molding is much less than those in sheets for light guiding plates (see, e.g., Sakamoto's examples which

contain 0.030-0.079 parts by weight of ethylene glycol dimethacrylate (EGDMA)(see Table 1)).

As noted above, it is difficult to use injection or extrusion molding to mold a cross-linked polymer obtained by polymerizing the required mixture of the present invention (which includes substantial amounts of EGDMA (0.15 to 2 parts per 100 EGDMA) in the polymerizable material). Thus, Sakamoto which relates to injection or extrusion molding cannot teach or suggest the claimed methods which require substantial amounts of EGDMA for at least the reason that substantial amounts of EGDMA would be difficult to use in Sakamoto's methods. Stated another way, Sakamoto which relates to injection or extrusion molding actually teaches away from the claimed methods requiring substantial amounts of EGDMA.

Furthermore, Sakamoto neither teaches nor suggests that ethyleneglycol dimethacrylate must be present -- nowhere does Masuda require the presence of EGDMA. As demonstrated in comparative example 1 of the present invention (Table 1), this lack of disclosure is significant.

Finally, Sakamoto neither teaches nor suggests that monofunctional acrylate must be present in an amount less than or equal to 5%. As demonstrated in examples 1-6 of the present invention (Table 1), this lack of disclosure is significant.

In sum, the combination of Masuda and Sakamoto cannot lead to the claimed invention which requires specific materials in specific concentrations.

At any rate, the examples in the present application demonstrate significant advantages of the claimed invention over comparable, Masuda-esque or Sakamoto-esque compositions. Such benefits could not have been expected from Masuda's or Sakamoto's disclosures. These benefits, by themselves, demonstrate the novelty and non-obviousness of the claimed invention.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 based upon Masuda and Sakamoto.

Regarding the § 103 rejection based upon Hirota and Sakamoto, this combination of references does not yield the claimed invention either.

As recognized by the Office Action at page 7, Hirota does not disclose the use of EGDMA in the amount of 0.15 to 2 parts per 100 in the polymerizable material as required by the pending claimsas required polyfunctional (meth)acrylate.

Sakamoto cannot compensate for Hirota's fatal deficiencies for the same reasons it cannot compensate for Masuda's deficiencies.

At any rate, as discussed above, the examples in the present application demonstrate significant advantages of the claimed invention over comparable compositions. Such benefits could not have been expected from Hirota's or Sakaomoto's disclosures. These benefits, by themselves, demonstrate the novelty and non-obviousness of the claimed invention.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 based upon Hirota and Sakamoto.

Applicants believe that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

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